

CLAIMS:

1. A method of wiring an electrical terminal (2) of an electrical device (1) comprising

providing a position controllable wiring finger (31) having an insulated electrical wire (20) supplied thereto and a wire outlet (35), and a pressure element (37) including a cutting means (38), movable with respect to said finger and located adjacent thereto,

wherein said terminal (2) comprises an insulated housing (4);

a connection zone (3) defined within said insulated housing, said connection zone including a slit blade insulation piercing connector SBIPC (11) located in said housing in a position protected against accidental touching,

comprising, in accordance with the invention,

for establishing an initial terminal connection between a leading end of the wire (20) and the terminal (2) the steps of

positioning said finger (31) spaced from the terminal (2) and outside of the contact zone (3) and portions of the insulated housing surrounding the SBIPC (11);

feeding a predetermined length of wire from the finger over the pressure element (37), whereby the wire will be positioned adjacent the outlet (35) of the wire from the finger at the side thereof remote from the contact zone, and against the outlet by the pressure element;

causing relative movement towards each other of the finger (31) and the contact zone (3) of the terminal (2) and thereby pressing the wire (20) by pressure of the pressure element into the SBIPC (11) of the contact zone (3), while maintaining the relative spatial position of the contact finger and of the pressure element (37); and

further, for establishing a final wire connection between a trailing end of the wire (20) and the terminal, comprising the

steps of positioning said finger (31) spaced from the terminal and outside of the contact zone (3) and portions of the insulated housing surrounding the SBIPC (11), and further such that a portion of the wire adjacent said outlet (35) from said finger is at a side thereof remote from the contact zone, and said wire will be supported by said pressure element (37);

causing relative movement of the pressure element (37) towards said contact zone and additionally, movement relative with respect to said finger (31), thereby cutting the wire close to the SBIPC (11) by said cutting means (38); and

immediately thereafter pressing, by means of said pressure element (37), the wire into the SBIPC (11) while maintaining the finger outside of the contact zone and portions of the housing surrounding the SBIPC.

2. The method of claim 1 comprising, for through-wiring the wire (20) to a terminal (2) positioned between an initial portion and a trailing portion of the wire, the steps of

positioning said finger (31) spaced from the terminal (2) to be through-wired in a position in which said outlet (35) is spaced from the contact zone (3) of the terminal (2) and said wire, at the side thereof remote from the contact zone, is supported by said pressure element (37);

pressing the wire adjacent said outlet (35) by said pressure element into the SBIPC (11), while maintaining the position of the finger outside of the contact zone and portions of the insulated housing surrounding the SBIPC (11).

3. The method of claim 1, including the step of pre-centering and pre-positioning the wire (20) in the region of the contacting zone (3) relative to the SBIPC (11) immediately in advance of pressing, by said pressure element (37), said wire into the SBIPC (11).

4. The method of claim 1, wherein said pressure element comprises two pressure surface portions (46, 47) of essentially equal length, and positioned in a common plane of symmetry;

and wherein said step of establishing an initial terminal connection, or establishing a through-wire connection, a first one (46) of said pressure surface portions (46, 47) which is located remote from said outlet (35) of the finger, is in alignment with, and engages said wire for pressing the wire into the SBIPC (11); and

wherein, for establishing a final wire connection, that one (47) of said pressure element portions which is close to said outlet (35) of the finger is placed in alignment with the SBIPC (11) for insertion into said SBIPC by said pressure element.

5. The method of claim 1 wherein, for establishing a final wire connection, the step of cutting the wire comprises cutting the wire immediately adjacent a terminal edge of said outlet (35) of the finger.

6. The method of claim 5, including the step of retaining a cut end of the wire (20) contacted by said SBIPC (11) within portions of the insulating housing in positions secure against accidental contact with the cut wire.

7. A wire positioning finger unit particularly for carrying out the method of claim 1 having

a positioning finger (31) formed with wire guide means (33) terminating at a wire outlet (35) at one side of the finger;

a pressure element (37) relatively movably with respect to the finger (31) and positioned at the side of the wire outlet opening (35), said pressure element having a pressure surface (46, 47) located in the vicinity of the wire outlet opening (35) for engagement with a wire (20) fed by the finger;

and wherein said pressure element is movable, with respect to the fingers (31) to assume at least three positions (I, II, III) wherein

in a first position (I) the pressure surface (46, 47) is spaced from said wire outlet (35) to permit free feeding of a wire from the outlet;

a second position (II) in which said pressure surface (46, 47) essentially forms an extension of an upper edge of said wire outlet opening (35); and

a third position (III) in which said pressure surface is located below the wire outlet opening (35).

8. The unit of claim 7, wherein the width (37a) of the pressure element (37) transversely to the pressure surface (46) is less than the width of the finger (31).

9. The unit of claim 7, including a cutting means (38) on the pressure element (37) at the side thereof adjacent the wire outlet;

and

wherein said wire outlet (35) is formed as a counter-surface for said cutting means.

10. The unit of claim 9, wherein said cutting means comprises a cutter blade (38).

11. The unit of claim 10, wherein said cutter blade is replaceably secured to said pressure element (37).

12. The unit of claim 7, wherein said pressure surface comprises two pressure sections (46, 47) located in a common plane of symmetry (45) extending longitudinally of the pressure surface; and

5 wherein the spacing and length of said pressure surface portion are dimensioned with respect to the dimensions of a contacting zone (3) of a terminal (2).

13. The unit of claim 12, wherein the pressure element (37), in portions thereof adjacent said pressure surface sections (46, 47) is formed with shaped regions, which are wider than the widths of the pressure surface portions, and the shapes of which are matched to the shape of the contacting zone (3) of the terminal.

14. The unit of claim 13, wherein the shaped regions (48, 49) are positioned at least at an end of the pressure surface sections, or, respectively, between adjacent pressure surface sections.

15. The unit of claim 12, wherein said pressure surface sections (46, 47) comprise a rib, or strip-like part of the pressure element (37), said rib or strip-like parts having wall thicknesses which are smaller, or equal to the diameter of a conductor of a wire (20) to be contacted with a terminal.

16. The unit of claim 7, wherein the pressure element (37) is formed with a hollow, necked flute (40) within which said pressure surface is located.

17. The unit of claim 7, including a guide surface (41) formed on the pressure element (37) for guiding of a wire (20) to be contacted.

18. A terminal element, particularly for use with the method of claim 1,

said terminal element comprising a contacting zone (3) having an insulation piercing slit blade connector SBIPC (11) located therein,

an insulating housing (4) formed with an inlet slot (15) to receive a wire (20), and retaining said SBIPC with a wire receiving slit (12) aligned with said inlet slot (15), said SBIPC being retained within said housing (4) safe against accidental contact therewith;

said housing (4) being formed with a slot or groove-like extension (16) projecting from said at least one inlet slot (15), which extension (16) is so dimensioned that a free end of the wire (20) is retained therein secure against accidental contact with said free end;

said terminal (2) being dimensioned to fit within a predetermined raster; and

wherein said extension (16) at least in part, has a width which is smaller or at most slightly larger than the nominal outer diameter of the wire (20) to be connected to said SBIPC (11), including the insulation of said wire (20).

19. The terminal of claim 18, wherein said contacting zone is formed by a pair of rib-like projections (14) facing each other and, together forming said inlet slot;

and wherein said terminal is further formed with spaced walls (9, 10) extending away from said SBIPC (11) in a direction essentially perpendicular to said SBIPC along a longitudinal axis (17),

said projections being integral with said walls (9, 10).

20. The terminal of claim 19, wherein said walls (9, 10) are formed with facing rib-like projecting portions (22) defining, between themselves, a reception slot (23) for said wire (20).

21. The terminal of claim 20, wherein the width of at least one of

the space between said projecting portions (22) and said inlet slot (15) is smaller than the nominal diameter of the wire (20) including its insulation.

22. The terminal further including a bottom wall (18) formed on said extension (16), said bottom wall being essentially in alignment and equal to the bottom edge (19) of an insertion slit (12) of the SBIPC (11).

23. The terminal of claim 18, further including a closing-wall (27) closing off said extension (16) at the side thereof remote from the SBIPC.

24. The terminal of claim 23, wherein said closing wall (27) is frangible to permit breaking thereof upon introduction of a wire (20) into said extension (16).

25. The terminal of claim 18, further including removable, openable closing means (28) closing off said extension (16) at the side remote from the SBIPC, said openable closing means (28) being elastically deflectable upon insertion of the wire (20) into said extension.

26. The terminal of claim 18, wherein said housing walls (9, 10), in the region of said groove-like extension (16) is



formed with projecting clamping surfaces or guide surfaces (14a) for a wire to be introduced into the terminal (2).

27. The terminal of claim 26, wherein said clamping surfaces or guide surfaces (14a) comprise integrally formed projecting portions (14a) located at opposite sides of said walls (9, 10) and facing each other.

28. The terminal of claim 27, wherein the projecting portions are formed with inclined insertion guide surfaces (19).

29. The terminal of claim 18, wherein the outer dimensions of the housing, at least in the contact zone (3) and the housing portions delimiting the groove-like extension (16) are dimensioned with respect to minimum size required by insulation of adjacent terminals and the required air and creep paths between adjacent terminals.

30. The terminal of claim 29, wherein the terminal housing includes a plurality of adjacently located terminal positions (3), each having contacting zone;

and wherein separating walls (10) between adjacent terminal positions are dimensioned to be a minimum with respect to required air and creep paths of adjacent terminals.

31. The terminal of claim 19, wherein said projections (14) defining the inlet slot project with different dimensions at selected positions over their length, so that the inlet slot (15, 22) defined by said projections will have regions (24) of different widths with respect to the depth of said slots.

32. The terminal of claim 31, wherein said slot or groove-like extension (16) has, with respect to its depth, regions of different widths.